

Date: Fri, 6 May 94 04:30:24 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #120
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 6 May 94 Volume 94 : Issue 120

Today's Topics:

 <NE 5534 PINOUT DIAGRAMS>

 Anyone interested in talking about frequency standards?
 European Phone Line Specs???

 Fox Hole Radios (2 msgs)

Help with ATV antenna tuning, UHF SWR meter advice, general ATV stuff?
 Making CW with a CB rig?
 rheostats (2 msgs)

 SEARCHING FOR LOW POWER FM TRANSMITTER for BROADCAST BAND (2 msgs)
 Vertical yagi mounting
 Wanted : Cheap, available varacter diode source

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 5 May 1994 04:36:57 GMT
From: ihnp4.ucsd.edu!usc!cs.utexas.edu!convex!news.duke.edu!eff!news.kei.com!
babbage.ece.uc.edu!news.cs.indiana.edu!nsthns.ca!newsflash.concordia.ca!
CC.UMontreal.CA!poly-vlsi!nick@network.
Subject: *<NE 5534 PINOUT DIAGRAMS>*

To: ham-homebrew@ucsd.edu

In article <2q6sji\$b7u@search01.news.aol.com> jimn0oct@aol.com (JimN0OCT) writes:
>Does anyone have the pinout diagram for the NE 5534 op amp?? Operating voltage
>and other specs would be nice, but I really need the pin diagram.

Jim:

Like most single op-amps, this one follows the norm. The pin out is as follows

1 balance
2 - input
3 + input
4 -v supply (or ground)
5 compensation
6 output
7 +v supply
8 balance/compensation

The 5534 is considered a very "quiet" op-amp. It has been widely used for high end audio equipment and is often seen in professional recording studio sound processing gear and consoles. You pay the price for the quiet performance with current consumption; 6-10 mA per op-amp! VERY high, but that's the trade

off you have to put up with for noise (or lack of it in this case). The op-amp can run on a supply of upto +/- 22V. Nice! At this voltage, this device can almost drive 1 watt of power into 600 Ohms.

Hope this is all you need. Nick

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*****
*      Nick Ciarallo      *
*      SR Telecom Inc.    telephone: 514-335-2429  ex: 438    *
*      Microwave Group    facsimile: 514-334-7783    *
*      8150 Trans Canada Hwy internet : nick@vlsi.polymtl.ca    *
*      St. Laurent, Quebec hamradio : ve2hot@ve2fkb.pq.can.na    *
*      Canada H4S-1M5      *
*****
*      Accept no substitutes, *REAL* ham radio lives on 220 MHz!    *
*****
```

Date: 5 May 1994 13:13:19 GMT
From: pacbell.com!ohlone.kn.PacBell.COM!jlundgre@ames.arpa
Subject: Anyone interested in talking about frequency standards?
To: ham-homebrew@ucsd.edu

Maybe you should drop the NIST formerly NBS a line. Their address is given out on the hour by WWV 'on 2.5, 5, 10, 15, and 20 MHz...' in Colorado. Obviously you listen to WWV if you're interested in precision timekeeping and accurate frequencies...

Date: 5 May 1994 13:16:32 GMT
From: pacbell.com!ohlone.kn.PacBell.COM!jlundgre@ames.arpa
Subject: European Phone Line Specs???
To: ham-homebrew@ucsd.edu

Since the europeans took their phone systems from the U.S., the specs are probably the same for POTS (plain old telephone svc.) So the U.S. should apply. The political and regulatory specs differ, though. BTW, this should be posted on comp.dcom.telecom, FWIW.

Date: 6 May 94 07:07:50 GMT
From: agate!ihnp4.ucsd.edu!pacbell.com!ohlone.kn.PacBell.COM!
jlundgre@ucbvax.berkeley.edu
Subject: Fox Hole Radios
To: ham-homebrew@ucsd.edu

The razor should be one of the 'blue steel' types. The coating or whatever makes it blue also is a different substance than the pin tip, and the two make a junction that rectifies the signal. The same thing as a galena crystal radio. You didn't include any tuned circuit, so this receiver will pick up any and all of the AM stations. Just remember that the strength of the signal is proportional to the length of the antenna.

Date: 6 May 94 06:41:48 GMT
From: agate!howland.reston.ans.net!EU.net!sunic!news.funet.fi!aton.abo.fi!
usenet@ucbvax.berkeley.edu
Subject: Fox Hole Radios
To: ham-homebrew@ucsd.edu

In <2qbqju\$fgs@frame.frame.com> cud@chewie.corp.frame.com writes:

>
> A long time ago, I read a Boy's Life article that
> showed how to make a (veritable) chrystal radio
> using a safety pin, an eraser, and a razor blade.
>
> I recall the safety pin is rigged to connect the
> circuit to the razor blade at the pin point. The
> eraser is run through by the pin to weigh the point
> against the razor blade. You move the pin across the
> surface (not the edge) of the razor blade to change
> frequency.
>
> My (most uneducated) guess is that the pin bounces

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> on the blade, so the current can only pass in one
> direction. The bounce is related to the signal
> frequency (???), so moving the pin around ressonates
> differently on the blade. When you get a signal, the pin
> bounces in response, so you can hear it in the ear phone.
>
> I guess the antenna attaches to the pin, and the
> ground to the blade, with the earphone in between
> the ground and the blade?
> This is where I get lost. I suppose I could just
> try to build one of these suckers! Still, I was
> wondering if anybody has heard about this low-tech
> wonder, and can offer me advice.

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See "Handbook of Radio Communications", don't remember the author, but that book was published around 1985..86 by TAB Books.

Blade is used as a diode, not a frequency control device. Pin is moved around the surface of the blade in order to find a good spot where it acts as a diode.

Frequency control is done by an LC-circuit at the antenna end of foxhole radio.

```

1
1
1 antenna
1
1
1
1 razor blade -diode
1
1 ----- -->1-----
coi Z 1 1 1
Z === 1 1 (high-Z)
Z 1 capacitor 1 capacitor ) head-
Z__1 (or another coil in === ) phones
1 simple construction) 1 )
1 1 1
1 ground 1 1

```

Mika Suoranta, E-mail MIKA.SUORANTA@ABO.FI, Packet OH1NZQ@OH1RBU.FIN.EU

Date: Wed, 4 May 1994 13:55:18 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!EU.net!sunic!psinntp!psinntp!
arrrl.org!zlau@network.ucsd.edu
Subject: Help with ATV antenna tuning, UHF SWR meter advice, general ATV stuff?
To: ham-homebrew@ucsd.edu

F. Kevin Feeney WB2EMS (fkf1@cornell.edu) wrote:
: In article <jefman-270494230322@pme15.pomo.wis.net> Jeff Mann,

: Hi Jeff,
: I've been using quagis on ATV and other stuff for several years now with
: good results. I suspect that the bandwidth of a quagi, though better than
: a straight yagi, is still a bit narrow for a full atv signal, but it
: seems to
: work. I get a low swr for about 3-4 mhz bandwidth typically.

True, if you try to optimize a yagi one element at a time, you do
tend to get a narrow bandwidth. But, it is possible to do much
better with very long yagis. The 1992 Eastern States Conference
has a design by Tom Kirby that has plenty of bandwidth for ATV,
even at 135 cm (I realize the band isn't big enough). From 220 to
226 MHz its gain is from 18.4 to 18.7 dBi, while the SWR is below
1.4 to 1. However, even on 70 cm, 25 elements on a 17 ft boom may
be a little too big for some applications. The 22 element K1FO
yagi for 432 also has a pretty wide bandwidth.

--
Zack Lau KH6CP/1 2 way QRP WAS
 8 States on 10 GHz
Internet: zlau@arrrl.org 10 grids on 2304 MHz

Date: 6 May 94 07:33:44 GMT
From: agate!ihnp4.ucsd.edu!pacbell.com!ohlone.kn.PacBell.COM!
jlundgre@ucbvax.berkeley.edu
Subject: Making CW with a CB rig?
To: ham-homebrew@ucsd.edu

Here in U.S.A, or E. U., it's against the law to send code over the CB.
I don't know what the laws of Mexico would say. All you have to do is
find the two wires in the microphone that go to the push button switch.

When the two wires are shorted, then the CB set puts out power. Run those two wires to your Key. There should be no microphone on it.

The problem is in the reception. How will you be able to hear it? The CB sets do not have a BFO, or Beat Frequency Oscillator, like Ham Radios do. You will have to make up one for your receiver.

Buena Suerte.

Date: 5 May 1994 15:13:24 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!vixen.cso.uiuc.edu!
newsrelay.iastate.edu!news.iastate.edu!kenman@network.ucsd.edu
Subject: rheostats
To: ham-homebrew@ucsd.edu

Hello: I'm working on my first homebrew project and need to order a rheostat.

In the catalog I see there are linear taper and audio taper rheostats. What's the difference here?

Thanks!

Ken

--
Ken Anderson NOZEM Kenman@iastate.edu PH: 515.294.8996
126 Soil Tilt Bldg., Iowa State University, Ames, Iowa 50011

Date: 6 May 94 07:26:09 GMT
From: agate!ihnp4.ucsd.edu!pacbell.com!ohlone.kn.PacBell.COM!
jlundgre@ucbvax.berkeley.edu
Subject: rheostats
To: ham-homebrew@ucsd.edu

EH? I know that the audio taper has about 3/4 of the resistance in half of the rotation. And the logarithmic stuff. I guess I should have made my question clearer.

If a rheostat is a power potentiometer, then it is usually made using wire, like a wirewound resistor. And the wire is heavy enough that the wiper arm can't wear it out, or tear it up.

Now how does one wind wire in an audio taper? At one end of the pot, the wire would be bunched up, and at the other end it would be spaced apart that the wiper arm would have to be extra wide, so it wouldn't lose contact. And at one end, the power dissipation would be excessive, since that's where all the resistance is.

Sounds like a rheostat might be a bit more expensive to make than the everyday pot.

Date: 3 May 1994 22:22:05 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!
howland.reston.ans.net!cs.utexas.edu!korie1!news2me.EBay.Sun.COM!
engnews2.Eng.Sun.COM!bender@network.ucsd.edu
Subject: SEARCHING FOR LOW POWER FM TRANSMITTER for BROADCAST BAND
To: ham-homebrew@ucsd.edu

Michael Miles (mbm1949@u.cc.utah.edu) wrote:

: Rich Krinsky (rich@cmc) wrote:
: : I am interested in designing an FM transmitter for broadcast in the FM band.
: : The device will be digitally tuned (not with a screwdriver!).
: : 1. Does anyone have any design information for such a product?
: You can order a complete kit or just schematic from Rasmey Electronics.

You didn't read what the poster said - he wants design information for a DIGITALLY TUNED transmitter - the Ramsey kit uses a screwdriver-type tool to turn the tuning slug in a coil to set the operating frequency.

: : 3. Has anyone taken the guts of a cordless phone and modified it for this?
It would seem that
: : this would be the most "elegant & inexpensive solution".
: Wouldn't be worth the effort, you could make one easier.
: And, much cheaper.

How can you judge what would be worth the effort? The poster may find it very educational to take a cordless phone and modify it to broadcast in the FM band.

mike

--

mike bender | sun microsystems | 415-336-6353 | bender@oobleck.eng.sun.com
The rip-off attitude of many today is "get somebody else to do your job for you". This is very unprofessional and shows no pride of workmanship. It demonstrates a deterioration in humanity in the past 30 years. -FRED BACH

Date: 5 May 1994 13:07:06 GMT
From: pacbell.com!ohlone.kn.PacBell.COM!jlundgre@ames.arpa
Subject: SEARCHING FOR LOW POWER FM TRANSMITTER for BROADCAST BAND
To: ham-homebrew@ucsd.edu

The original requester will find it educational (school of hard knocks) or impossible to modify a cordless phone for broadcasting in the FM band.

Most of the digitally tuned radios use varactors to tune the circuits instead of capacitors. If a source of varactors is available, then they can be substituted for the capacitors. The appropriate circuit must be used, in addition to the decoding, which is a simple D to A convertor.

Date: Wed, 4 May 1994 15:17:39 GMT
From: ihnp4.ucsd.edu!galaxy.ucr.edu!library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!EU.net!sunic!psinntp!psinntp!arrl.org!zlau@network.ucsd.edu
Subject: Vertical yagi mounting
To: ham-homebrew@ucsd.edu

Paul H. Bock K4MSG (phb@syseng1.melpar.esys.com) wrote:

: 3) Has anyone out there ever purposely installed a yagi array
: vertically using a metal mast and tried to measure the effects
: (VSWR, azimuthal pattern accuracy, etc.)? I have a A148-10S
: which is currently mounted horizontally, and have been toying
: with rotating it into the vertical plane and trying to measure
: the effects, but maybe someone else has tried it out of
: scientific curiosity.....

Kent Britian measured a 2.2 wavelength 435 MHz DL6WU yagi on his test range.

With the mast all the way through the yagi, the gain varied by +1 to -10 dB.

With the mast half way through the yagi, the gain varied by +1 to -6 dB. There appear to be more spots to put the mast in without degrading it too much, but this might be yagi specific.

He varied the spacing between the driven element and the mast.

The results appear in the 1993 AMSAT-NA proceedings (11th)

--

Zack Lau KH6CP/1 2 way QRP WAS
8 States on 10 GHz
Internet: zlau@arrl.org 10 grids on 2304 MHz

Date: 6 May 94 07:12:45 GMT
From: agate!ihnp4.ucsd.edu!pacbell.com!ohlone.kn.PacBell.COM!
jlundgre@ucbvax.berkeley.edu
Subject: Wanted : Cheap, available varacter diode source
To: ham-homebrew@ucsd.edu

Dean Gelabert (dean@splinter.coe.neu.edu) wrote:

:

: Hi:

: I'd like to begin experimenting w/ varacter diodes. Can anyone
: recommend an inexpensive, readily available, easy to work w/
: device? Where can I get a few to play with?

:

: -Dean

If you go to the local Radio Shaft and buy some regular 1N4002
rectifiers, and use them instead, they will exhibit the same varactor
characteristics as the real thing, except it will not be linear as the
real thing. And of course, the amount of capacitance is dependent on the
junction size, so a higher power diode will have a higher capacitance.
Best of success.

End of Ham-Homebrew Digest V94 #120
